SUGGESTED SYMBOLS

FOR

PLANS, MAPS, AND CHARTS

(REVISED APRIL 1937)

NATIONAL RESOURCES COMMITTEE

WASHINGTON, D. C.

From the collection of the

San Francisco, California
2008

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Prepared as a Progress Report to the Federal Board of Surveys and Maps by its Special Committee on Standard Symbols, Scales and Terminology for Planning Use in collaboration with the staff of the National Resources Committee

NATIONAL RESOURCES COMMITTEE

WASHINGTON, D. C.

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INTRODUCTION

Purpose of this Outline

The need for a greater degree of standardization of symbols used on maps and charts to show research, statistical and survey data, as well as planning recommendations, is widely recognized. A common language based on a common "alphabet" of symbols is obviously essential if the audience, whether general or specialized, is to interpret correctly maps and charts prepared by planning and research agencies. For example, it is confusing to find the same green tint used on one map to represent recreation areas, also used on another to indicate a town site.

On the other hand, any attempt at absolute standardization of all symbols would be futile, as well as unwise. The present development and usefulness of symbols owes much to the experimentation and inventiveness of individual workers in this field and will owe more in the future.

This outline is presented, therefore, not as a code to be rigidly followed, but as a guide to those who employ graphic presentation, to the end that there may be more uniformity of practice in use of symbols, and in other details of map preparation. It is a revision of the preliminary edition of January 1936 which was submitted to, and accepted by the Federal Board of Surveys and Maps for general circulation and use.

Recognized Standards

The work of the Federal Board of Surveys and Maps is too well known to require detailing here. This agency has been effective in

the better programming of the mapping of the different Federal bureaus and has done much to standardize procedure, both as to technique of field surveys and as to details of map preparation and reproduction. The sheet of "Standard Symbols", prepared by the U. S. Geological Survey and adopted by the Federal Board of Surveys and Maps, is accepted by both public and private map producers, and has been adopted and followed by all Federal agencies. These standard sybmols furnish the general basis, and a starting point, for the further suggestions presented in this outline.

Method of Preparation

On October 10, 1933, The Federal Board of Surveys and Maps appointed a "Committee on Standard Symbols, Scale and Terminology for Planning Use" consisting of the following members: Charles W. Eliot 2nd, Chairman, Executive Officer of the National Resources Board; Messrs. W. M. Beaman, Geological Survey; J. H. Larrabee, Hydrographic Office; C. H. Birdseye, Geological Survey; D. B. Clements, General Land Office; E. H. Pagenhart, Coast and Geodetic Survey; Maj. J. W. Bagley, U. S. Lake Survey; Harold Merrill, National Resources Committee; W. O. Tufts, Association of Map Publishers; W. N. Brown, A.S.C.E., Surveying and Mapping Division; Harold Lewis, A. S. C. E., City Planning Division; Harland Bartholomew, American City Planning Institute; Robert H. Randall, National Conference on City Planning; Howard Menhinick, Harvard Graduate School of City Planning; and Gilmore D. Clarke, American Society of Landscape Architects. The General Committee was organized into sub-committees on Symbols, Terminology, and Scales. The members of the Symbols Sub-committee are Messrs. Bartholomew,

Beaman, Larrabee and Merrill. Mr. Merrill has continued to serve as a Secretary to the General Committee and the sub-committee on symbols.

In 1934 the Harvard School of City Planning prepared a collection and analysis of the symbols used in city and regional planning in the United States, entitled "Urban Planning Symbols", which was made available in manuscript form as a preliminary report to this Special Committee. It is a comprehensive collection of symbols currently used on maps prepared for planning purposes, and was compiled for the purpose of developing a rational basis for differentiating planning, or proposed-use symbols from existing-use symbols and for securing greater uniformity in their application.

The staff of the National Resources Board (now Committee) also had been for some time collecting and analyzing the symbols in use by the various public and private planning, research and mapping agencies, and with the very valuable assistance of cartographers in other Federal Agencies, in collaboration with the Special Committee of the Board of Surveys and Maps referred to above, proceeded with preparation of the outline of suggested symbols which was issued in preliminary form in January 1936.

At its general meeting on March 17, 1936, "Committee on Standard Symbols, Scale and Terminology for Planning Use" accepted the preliminary edition of the booklet "Suggested Symbols for Plans, Maps and Charts", submitted by the National Resources Committee staff for consideration and directed that the same be transmitted as its Progress Report to the Federal Board of Surveys and Maps. The Committee further

directed that all comments and suggestions for the improvement of the booklet be transmitted to the Staff of the National Resources Committee for their use in preparing a revised edition in collaboration with the Symbols Sub-Committee.

The text and plates contained herein have had the benefit of experience gained during the past 18 months in the practical use of the previous edition by members of the staff of the National Resources Committee, its consultants in the field and those in other state and Federal agencies which make or use maps, charts, and plans. Special acknowledgment is due to the staffs of the Pacific Northwest Regional Planning Commission and the New England Regional Planning Commission, to Frederick P. Clark, Associate Consultant to the latter, to Howard K. Menhinick, Harvard School of City Planning, and to Robert H. Randall, F. Ellwood Allen, Mary V. Daugherty, and Charles Faunce of the Staff of the National Resources Committee for valuable contributions and assistance.

The Committee wishes to emphasize that the symbols suggested in this publication are not to be considered final or conclusive. It is hoped that all agencies, technicians and others interested in this subject will continue to make suggestions for the improvement of techniques in graphic presentation.

PART ONE

GENERAL CONSIDERATIONS

Because of the great variety of information which must be portrayed graphically on plans, maps and charts, it is necessary to employ a rather wide variety of signs or symbols for clear and appropriate representation in black and white. It is often necessary to obtain additional differentiation by the use of color and of color combinations. The amount and degree of detail which it is necessary to show depend largely upon the major purpose and the scale to which it is to be presented. A balance must be maintained between the amount of information it is desired to show and the clarity and legibility necessary for easy and accurate reading. It is obvious, therefore, that the number, size and character of the symbols will vary with the scale of the map.

As far as possible, symbols should bear an easily traceable resemblance to the features which they represent. Obviously, each should represent only one element and should be sufficiently differentiated to be easily distinguished. Further, symbols should be simple in design so that they may be easily and readily drafted without the use of special instruments.

In the following pages, common problems in map making are briefly discussed under the headings of Scale, Reduction for Reproduction, Color, Gradations, Type and Magnitude.

Scale

Map scales are commonly expressed mathematically, as 1 inch = 200 feet, or 1:2,400; or graphically, by a bar-scale shown upon the map itself. The selection of the proper scale for any particular map depends

upon such considerations as what the map is attempting to show; the extent of the area to be covered; the degree and amount of detail and the sort of use the map will receive. Maps for wall or desk use can commonly be prepared in larger sizes than those for use in the field. Suitability for reproduction at the same scale, or at enlarged or reduced scales, also is an important factor in the selection of map scales.

Base maps prepared by Federal agencies are now available in a variety of standardized scales, most of which are included below. In preparing this Symbols outline the various scales have been divided into five general groups, in order to simplify the problems of selecting symbols for maps at different scales. They are as follows:

Scale A - State and District Maps

1:250,000 or 1 inch = 4 miles (approximate). (A new series at this scale is now in preparation by the U.S.G.S. for the U. S. Bureau of Public Roads to comprise more than 400 sheets, and to show all transportation systems.)

1:10,000,000 or 1 inch = 160 miles (approximate)

1: 2,500,000 or 1 inch = 40 miles (approximate)

1: 500,000 or 1 inch = 8 miles (approximate)

Scale B - Regional and County Maps

1:125,000 or 1 inch = 2 miles (approximate)

1: 62,500 or 1 inch = 1 mile (approximate)

1: 31,680 or 1 inch = 1/2 mile

Scale C - Detail Section and Study Maps

1:24,000 or 1 inch = 2,000 feet

1:12,000 or 1 inch = 1,000 feet

Scale D - City Maps and Plans

1 inch = 800 feet

1 inch = 400 feet

Scale E - Maps for Accurate Designing and Cost Estimating

1 inch = 200 feet

1 inch = 100 feet

Reduction for Reproduction

Since most of the maps prepared are reproduced by photomechanical processes, it should be constantly borne in mind that the map for reproduction should be prepared on a scale at least 1½ or 2 times the scale of publication. Maps traced on linen should be no less than twice the size of the published map. The larger scale of the original map facilitates the plotting of details, and considerable reduction improves the quality of the reproduction. It should be remembered, however, that a reduction to one-half scale produces a map only one-fourth the area of the original, and reduction so great may also prevent the reading of lettering and data which is not large enough on the original drawing.

Maps that will bear reduction without affecting the clearness of the detail they show may be reduced to fit the book of publication in which they are to appear, regardless of definite scale, although it is desirable where possible to include a "bar scale on the map".

A reducing glass (a concave lens mounted like a reading glass) is extremely valuable as an aid in judging the suitability of a drawing for reduction. If lines are drawn too close together the space between them will "choke" or blur in reproduction.

Color

Except for broad classes of information the standardization of color use is a difficult matter, partly because the individual taste of the map maker always has played an important part in his selection of colors, and partly because of the lack of uniformity of values among commercial colors bearing the same name. Much has been and may yet be accomplished in the direction however, and as a general guide, therefore, out of the very large choice of colors, 18, including black, gray and white, have been selected for inclusion in this Outline. Each has been assigned a number on the "Key to Color Symbols" plate (No.A-3), and these numbers are used on other maps and charts in the Outline to identify the color which is recommended for use.

Gradation and Hatchings

It often becomes necessary to present a graphic picture of the density, or instensity, of a particular factor in different parts of an area, and this usually can be accomplished by a series of graded tones of hatchure or other distinctive pattern. The gradation of tone should be uniform and progress should be from white for the lowest incidence of the information recorded to black for the highest (as in presenting variations in percentage of urban population). The number of tones to be used in a particular case will depend upon the data and on the way in which they are to be used. Where variations, such as of density, value, etc. are to be indicated in color, it is suggested that it is preferable to vary from light to dark in one color, rather than to use a confusing range of colors. In using variations of one color, great care should be taken to assure a uniform application of the various shades.

Type and Magnitude

In many surveys it becomes necessary to show by some graphic device the occurrence, number, characteristics (value, type, magnitude, ownership, etc.) and location of certain measurable factors. This may often be successfully achieved by the use of appropriately selected symbols which have the advantage not only of conveying the facts in their separate applications, but of presenting an easily comprehended picture of the whole.

For instance, in a survey of manufacturing industries, it may be desirable not only to show their approximate location, but also the type and size of industry. In such a case, one of the symbols shown on Plate A-5 would be selected for each type of industry to be shown on the map. The size of the symbol might be used to indicate the relative number of employees or value of output, and the placement of the symbol on the map to indicate the geographical location of the industry.

In selecting symbols for a map showing distribution, the size of the map after reproduction should of course be considered. No symbol which cannot be easily distinguished in the reproduction should be used. A reducing glass is valuable in making a test.

Miscellaneous Drafting Room Aids

A strip of cross-section paper, held in place at the proper angle with rubber cement, provides a simple method for spacing lines.

Shading and pattern prints which may be applied to drawings are available commercially in various styles and combinations. Their use will frequently save drafting time.

A conte crayon or soft carbon pencil rubbed over the back of a drawing for transfer purposes makes a clear impression which, however, can easily be erased.

Mechanical lettering sets are commercially available with pen, scriber and templates, etc. Templates are available in a variety of standard sizes and styles. Rapidity and uniformity of lettering results from the use of mechanical lettering sets.

A soft black china-marking crayon is useful for marking on smooth or glazed surfaces, such as glossy prints, and can be rubbed off easily without damaging the print.

The use of lake red color should be avoided where permanence is important; it is a fugitive color, fading rapidly.

Sodium hypochlorite, applied with a brush, will bleach Japanese transparent water colors, which cannot ordinarily be washed out.

By applying (with a spray gun) transparent, flat, dull-finish lacquer to a map or chart to protect existing data, additions, proposals, or changes may be made over the lacquer surface repeatedly. Care should be taken to avoid application of the lacquer so rapidly as to "puddle" or run, as this will dissolve the colors.

Series of transparent maps, drawn to the same scale, show, when superimposed, one upon another, over a strong light, the cumulative effect of the various classes of information depicted. The gradations recommended in Plate A-4 will be useful in this connection.

BIBLIOGRAPHY

The following publications have important bearing on the many aspects of the technique of plan, map and chart making:

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"International Notation for Civic Surveys and Town Plans", by the International Federation for Town & Country Planning & Garden Cities.
(Special Report No. 1)

" Symbols", Illustrated list of Social Map Symbols printed on posters in three sizes 1/2 inch, 3/8 inch, and 1/4 inch, available from Russell Sage Foundation, 130 East 22 Street, New York, N. Y.

PART TWO

Plates Showing Symbols and Maps

As noted on Plate A-3 numbers shown on plates beside symbols indicate color to be used.

Plate No.

A-1 TYPICAL MAPS AT DIFFERENT SCALES

(Showing various degrees of detail possible at four scales)

A-2 PLATE SHOWING REDUCTION OF LETTERS

(Reductions to 2/3, 1/3 and 1/6)

A-3 KEY TO COLOR SYMBOLS

(Chart showing 18 standard colors used or recommended in this outline)

A-4 SUGGESTED GRADATIONS AND SPECIAL HATCHINGS

(One color, and two gradation possibilities, with one additional column showing types of hatchings, not a gradation)

A-5 TYPE AND MAGNITUDE

(Suggested symbols for all scale maps)

B-1 WORKS AND STRUCTURES

(Prepared with reference to "Standard Symbols" of Federal Board of Surveys and Maps, and Symbols adopted by other Federal agencies -- Suggested for Scales A and B)

C-1 PRESENT LAND USE (NON-URBAN) SMALL SCALE

(Developed with assistance of Federal Board of Surveys and Maps, the Resettlement Administration, the New England Regional Planning Commission and the Harvard School of City Planning-- Also, see Land Utilization Series of the Ordnance Survey Small-Scale Maps of Great Britain -- Suggested for Scale A)

C-1.1 PRESENT LAND USE (NON-URBAN) LARGE SCALE

(Elaboration of Plate C-1, developed in same manner -- Suggested for Scales B, C and D)

Map PRESENT LAND USE (NON-URBAN)

(Map to illustrate use of symbols on Plate C-1.1)

C-2 PRESENT LAND USE AND ZONING (URBAN)

(Symbols for showing present land use, suitable for zoning maps. Prepared from a selection of symbols in common use by city planners and with the assistance of the Harvard School of City Planning -- Suggested for Scales D and E)

D-1 CONSERVATION AND RECREATION

Forest Fire Control and Range Management

(Prepared from "Forest Service Map Standards", 1936, Forest Service, Department of Agriculture -- For special maps)

D-2 CONSERVATION AND RECREATION

Miscellaneous Structures (Park and Forest)

(Prepared from charts used by National Park Service and Forest Service -- Suggested for Scales B, C and D)

D-3 CONSERVATION AND RECREATION

Type and Ownership

(Prepared in conjunction with the National Park Service -- For black and white reproduction -- Suggested for all scale maps)

D-4 CONSERVATION AND RECREATION

Type of Area by Uses

(Prepared with the assistance of the National Park Service and New England Regional Planning Commission -- Suggested for all scale maps)

D-5 CONSERVATION AND RECREATION

Color Key for Special Reservation Maps

(Prepared with the assistance of the National Park Service and New England Regional Planning Commission for the purpose of showing type and ownership by color — Suggested for all scale maps)

Map CONSERVATION AND RECREATION

Type and Ownership

(Map to illustrate use of symbols on Plates D-3, D-4, D-5

E-1 WATER RESOURCES

(Prepared from a study of the symbols used by the Bureau of Reclamation of the Department of the Interior, and the Iowa State Department of Health; and after consultation with various agencies of the Federal government -- Suggested for Scales A and B)

F-1 TRANSPORTATION

Roads, Highways, Intersections, etc.

(Prepared with reference to "Standard Symbols" of the Federal Board of Survey and Maps, and symbols adopted by the Bureau of Public Roads and other Federal agencies; and with the assistance of the Harvard School of City Planning -- Suggested for all scale maps)

F-2 TRANSPORTATION

Railroads, Bus Lines, Subways, Pipe Lines, etc.

(Prepared with reference to "Standard Symbols" of the Federal Board of Survey and Maps and symbols adopted by other Federal agencies -- Suggested for various scale maps)

F-3 TRANSPORTATION

Bridges, Ferries, Waterways, Airways, etc.

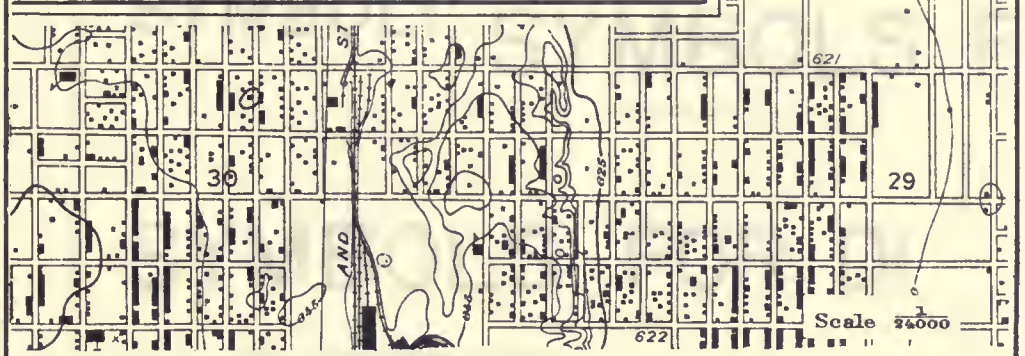
(Prepared with reference to "Standard Symbols" of the Federal Board of Survey and Maps, symbols adopted by other Federal agencies, and the New England Regional Planning Commission -- Suggested for all scale maps)

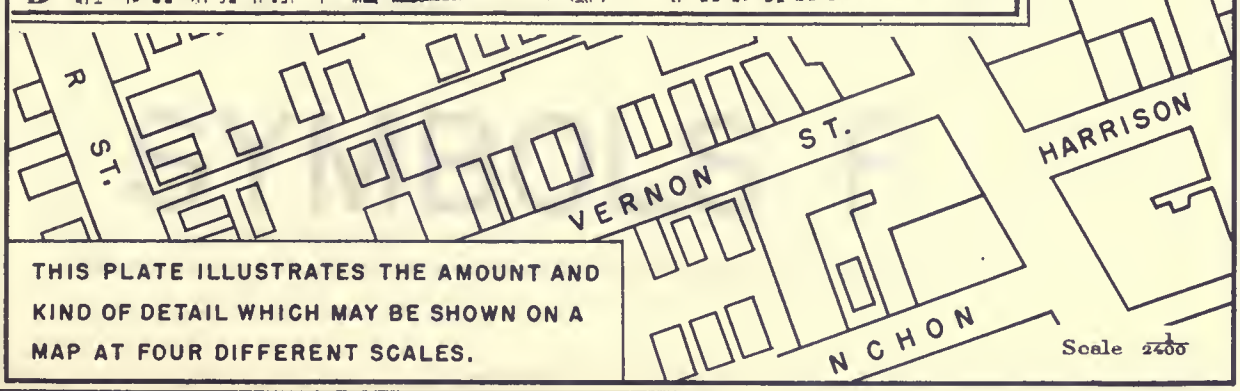
G-1 POWER AND COMMUNICATION

(Prepared with reference to "Standard Symbols" of the Federal Board of Survey and Maps and symbols adopted by the Federal Power Commission -- Suggested for Scales A and B)

TYPICAL MAPS ON DIFFERENT SCALES

A-1



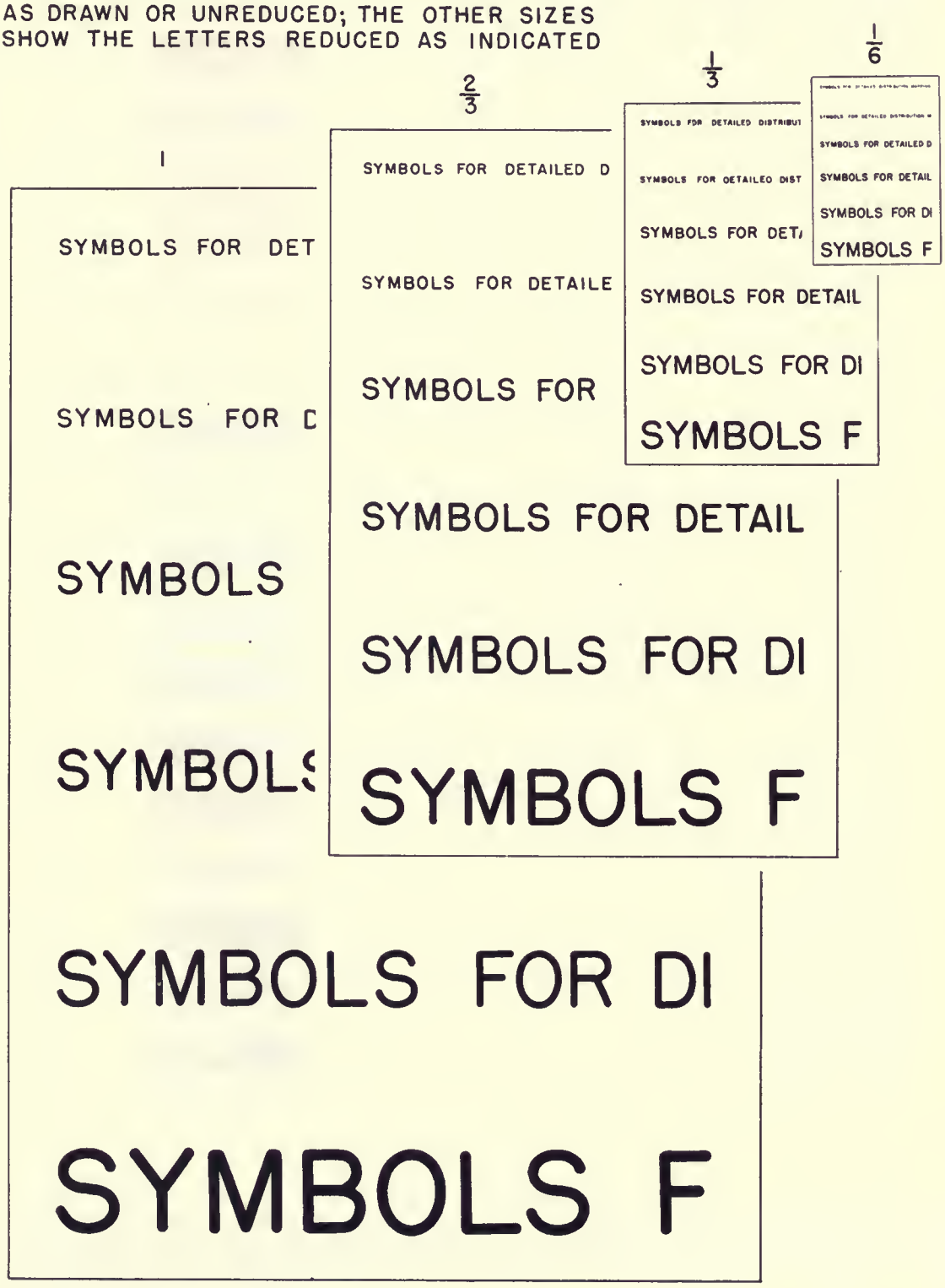


THIS PLATE ILLUSTRATES THE AMOUNT AND KIND OF DETAIL WHICH MAY BE SHOWN ON A MAP AT FOUR DIFFERENT SCALES.

PLATE SHOWING REDUCTION OF LETTERS

A-2

THE LARGEST SIZE SHOWS THE LETTERS AS DRAWN OR UNREDUCED; THE OTHER SIZES SHOW THE LETTERS REDUCED AS INDICATED

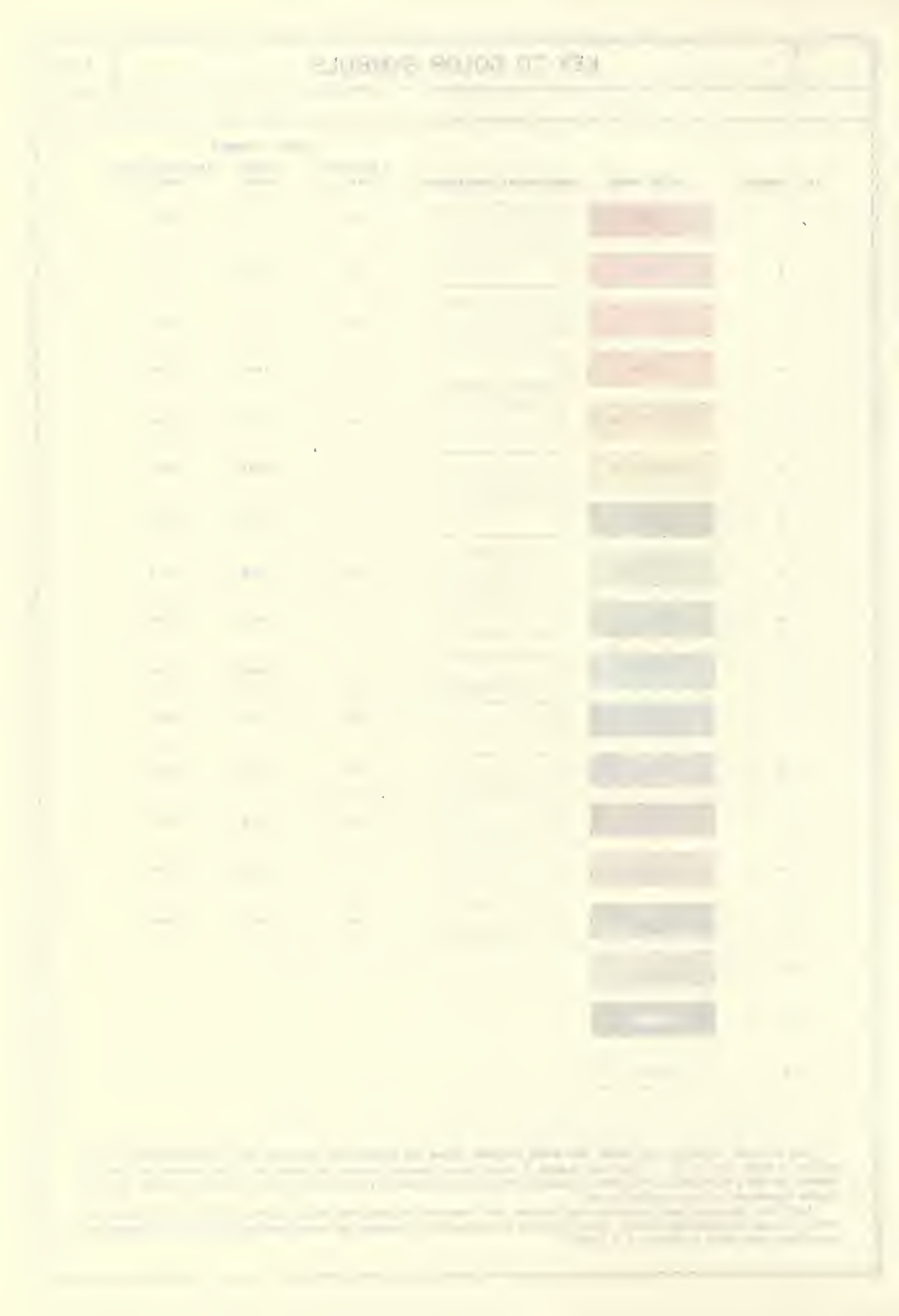


KEY TO COLOR SYMBOLS

KEY NUMBER	COLOR NAME	DRAFTSMANS PREFERENCE	PENCIL NUMBER A.W. FABER CASTELL	DIXON'S BEST	AMERICAN PENCIL UNIQUE
1	RED		36	321	1207
2	PINK		31	322	1217
3	VERMILION		38	349	1231
4	ORANGE		9	324	1214
5	GOLDEN YELLOW		6	353	1229
6	LEMON YELLOW		3	353½	1209
7	OLIVE GREEN		11	325	1238
8	LIGHT GREEN		16	354½	1218
9	DARK GREEN		17	354	1208
10	LIGHT BLUE		21	320½	1216
11	DARK BLUE		24	330	1236
12	VIOLET		30	323	1210
13	PURPLE		29	323½	1225
14	LIGHT BROWN		47	335½	1239
15	[illegible]		54	343	1224
16	GRAY				
17	BLACK				
18	WHITE				

The 18 colors, including gray, black, and white, indicated above are those most commonly and successfully used in the making of maps and charts. Values and shades of these colors, however, are not the same from one commercial brand to another, so that a blank column has been provided in which the draftsman may record such of his preferences as differ from the shades reproduced in the preceding column.

Each color above has been assigned a key number, and these numbers are used throughout this Outline to identify the color which is being recommended for use. Pencil numbers of colors which correspond, or nearly correspond, to the colors reproduced above have been listed in columns 3, 4, and 5.

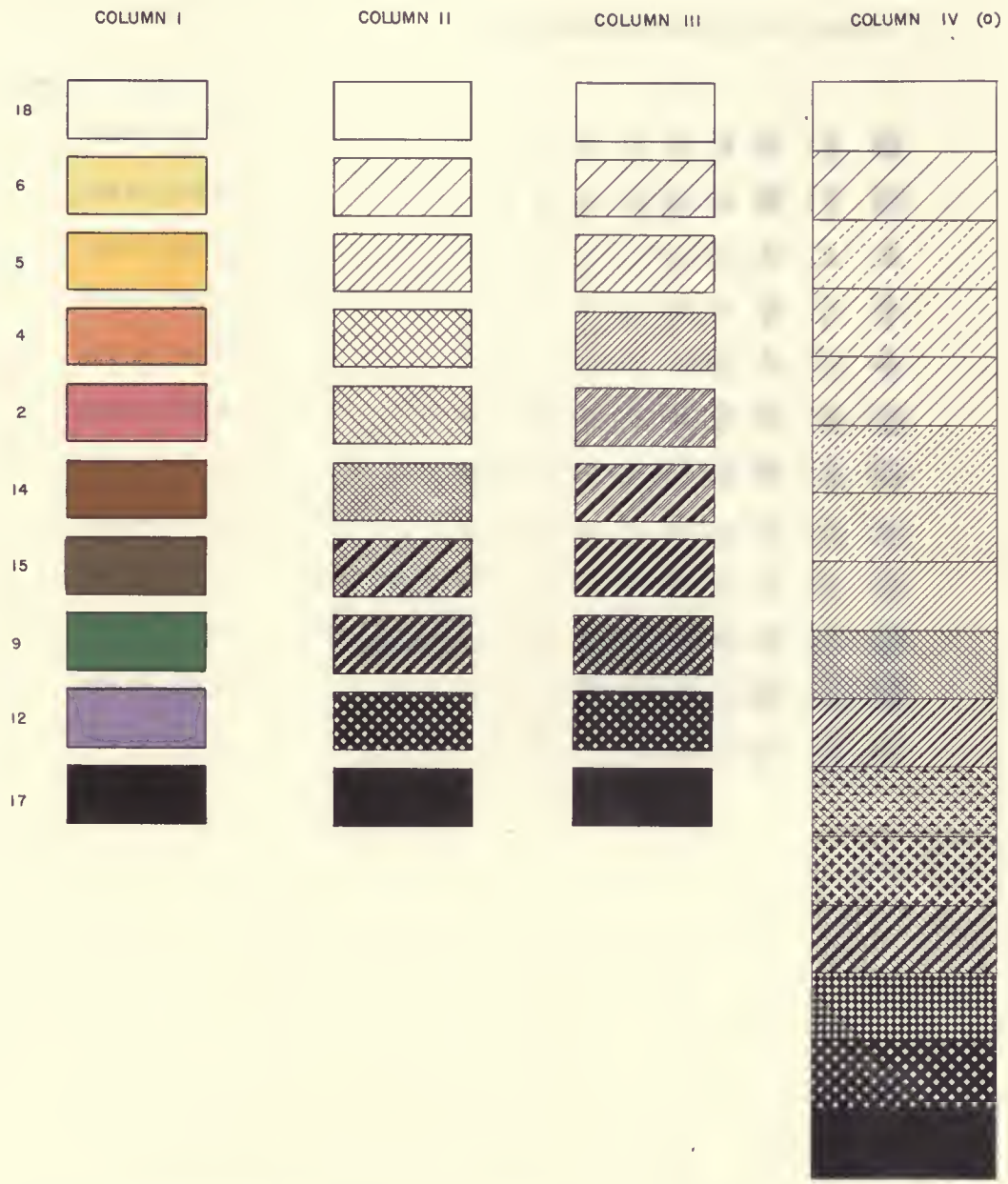


SUGGESTED GRADATIONS

A-4

AND SPECIAL HATCHINGS

SUGGESTED FOR ALL SCALE MAPS

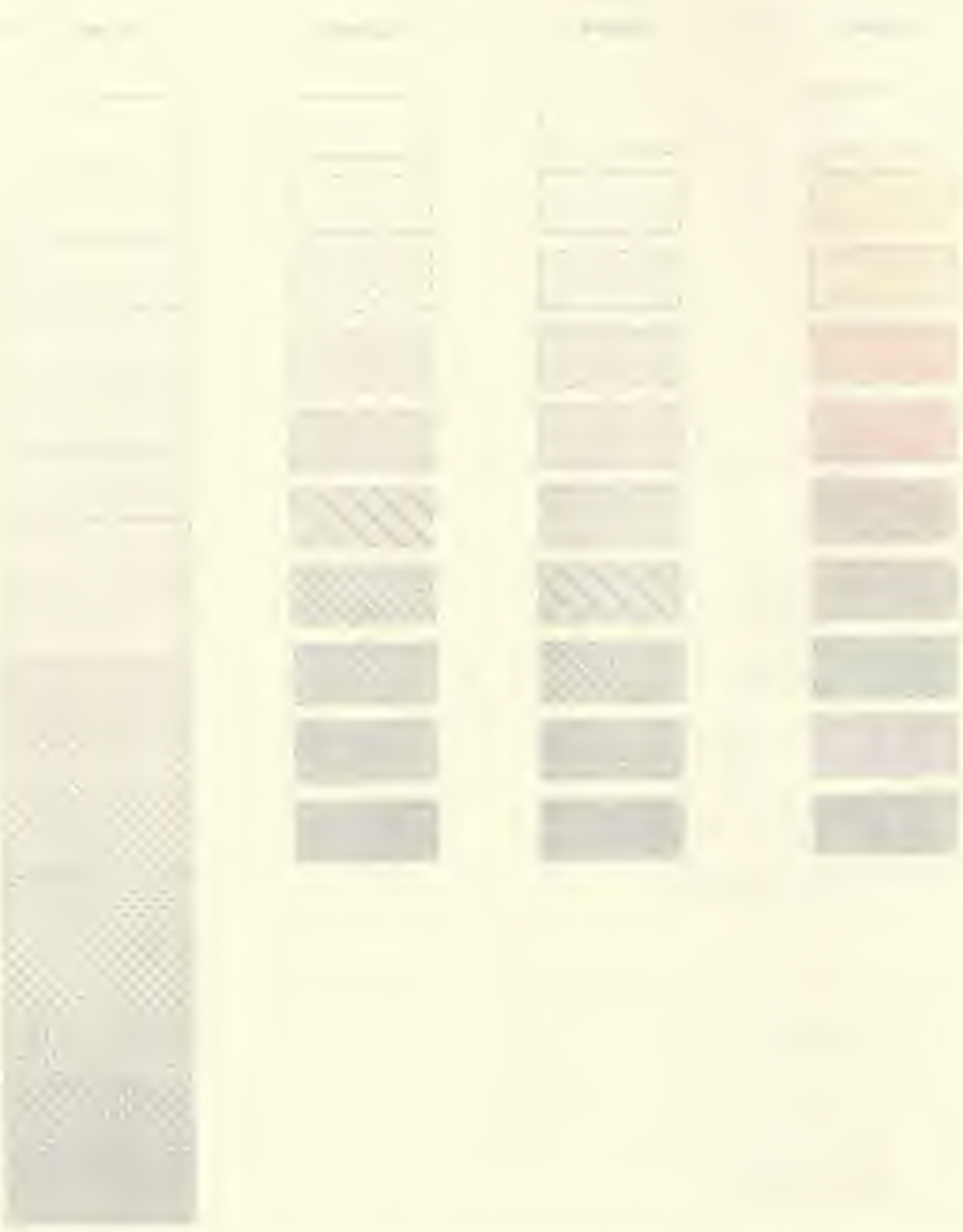


The four columns presented suggest various gradation possibilities. The first column suggests a color gradation, starting with white at the top to show low intensity and ending with black to show greatest intensity. The intermediate colors, which increase intensity proportionally, are: light yellow, golden yellow, orange, pink, light brown, dark brown, dark green, and purple.

The next two columns suggest black and white gradations, so planned that each tone can be changed into any darker tone without erasure.

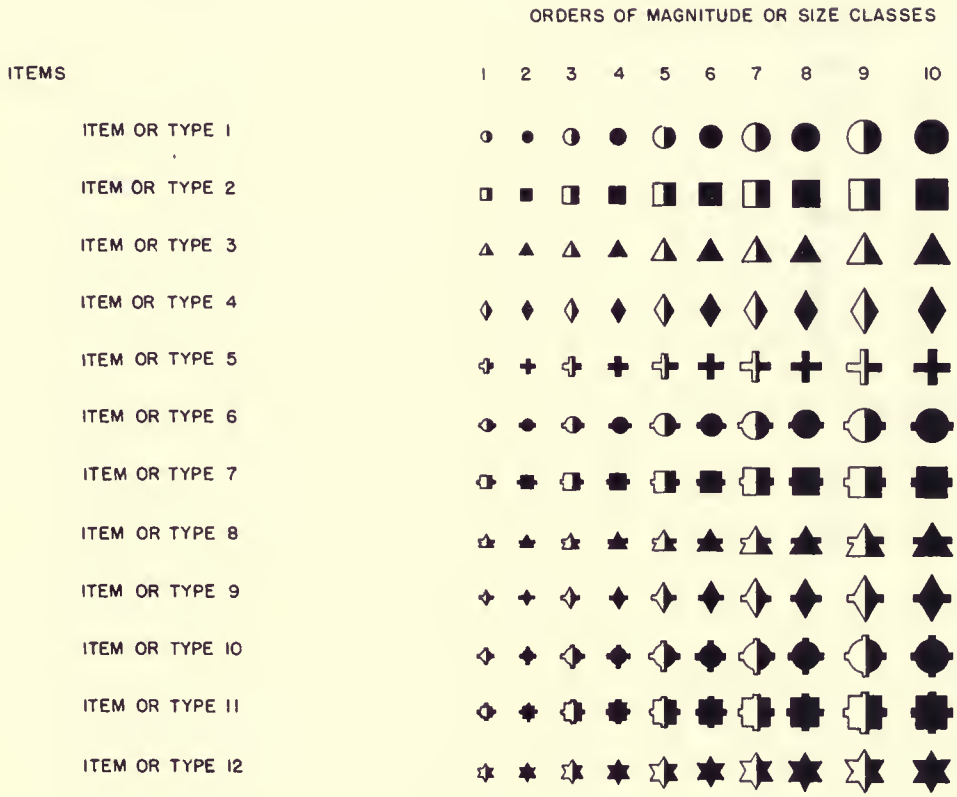
The spacing of the lines used in producing these tones will depend upon the scale of the map used, the amount of reduction required in reproduction, and the size of the smallest area to be designated. It is important that both the spacing and the width of lines be uniform. When work is done on tracing cloth, the spacing might be secured by tracing from accurate, printed (not ruled) cross-section paper. When working on a good drawing paper, it is best to lay off the spacing with dividers. A quicker method is to use a good section-lining machine.

The fourth column shows a system of 16 tones, from white to black, not, however, arranged so that the effective differences between adjacent tones are necessarily uniform.



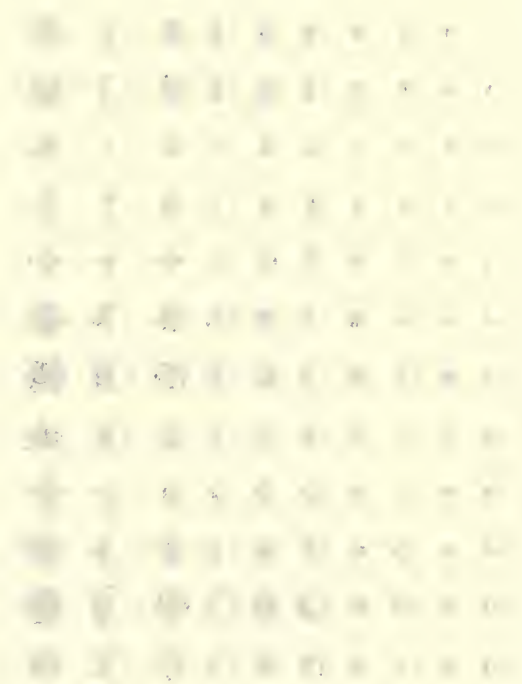
TYPE AND MAGNITUDE

SUGGESTIONS FOR ALL SCALE MAPS



The sort of symbol suggested here is chiefly valuable when it is necessary to show graphically more than one characteristic of certain measurable factors, such as size, value, type, ownership, occurrence or number, and location. In such case, the shape of the symbol might be used to designate one characteristic, the size of the symbol, another. When judiciously selected and used, these symbols will present an easily comprehended picture of the whole.

Twelve symbol shapes are suggested here, and 10 magnitudes. It should be borne in mind that most persons have difficulty in comparing the size of the symbol on a map with the size of the same symbol in a key or legend which may be placed at a distance on the same map. For this reason, only 5 different sizes are here recommended, an intermediate value being obtainable by the use of a half-black, half-white symbol.



WORKS AND STRUCTURES

B-1

SUGGESTED FOR SCALES A AND B

	IN USE	NOT IN USE
RESIDENCES AND COMMERCIAL		
CONDITION OF BUILDINGS (OPTIONAL)		
GOOD	G	G
FAIR	F	F
POOR	P.	P
SCHOOLHOUSE		
CHURCH		
OTHER EDUCATIONAL INSTITUTIONS		
OTHER RELIGIOUS INSTITUTIONS		
CORRECTIONAL INSTITUTIONS		
HOSPITAL		
FACTORY		
RAILROAD STATION		
CAMP		
SAWMILL (STATIONARY)		
SAWMILL (PORTABLE)		
CEMETERY		
RUINS		
FORT		
BATTERY		
AIRPORT (GENERAL)		PROPOSED
FENCE (ANY KIND)		
MINE OR QUARRY OF ANY KIND OR OPEN CUT		
PROSPECT		
SHAFT		
MINE TUNNEL — OPENING		
MINE TUNNEL — SHOWING DIRECTION		
OIL OR GAS WELLS		
WINDMILL		
TANKS		
COKE OVENS		
CANAL OR DITCH		
ABANDONED CANAL OR DITCH		
FLUME		

	EXISTING	PROPOSED
RADIO STATION		
TELEGRAPH STATION		

NOTES AND ADDITIONAL SYMBOLS

REFER TO STANDARD SYMBOLS, BOARD OF SURVEYS AND MAPS

PRESENT LAND USE (NON-URBAN)

C-1

SUGGESTED FOR SCALE A

	BLACK AND WHITE	COLOR LEGEND	SYMBOLS FOR FIELD NOTES
FOREST LANDS		7	F
OPEN AREAS		14	P
CROP LANDS		5	C
URBAN AREAS		1	U

PROBLEM AREAS ARE SHOWN BY THE USE OF A DASH LINE ALTERNATING WITH ANY OF THE ABOVE.

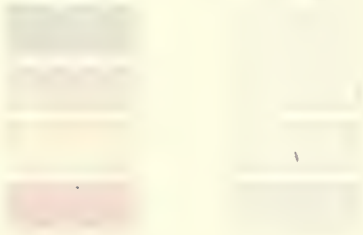
EXAMPLE

FOREST—CUT OR BURNED OVER, NOT RESTOCKING 7&16 FX

The symbols suggested were prepared after a study of the recommendations of the Federal Board of Surveys and Maps, Harvard School of City Planning study "Urban Planning Symbols", and of the Land Utilization Series of the Ordnance Survey Small-Scale Maps of Great Britain. The New England Regional Planning Commission, the Land Use Planning Section of the Land Utilization Division of the Resettlement Administration, and other Federal agencies assisted in working out the system.

The direction of the lines indicates the type of use:

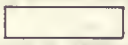
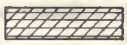
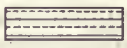
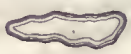
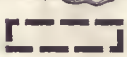
Forest Lands—Vertical
Open Areas —Horizontal
Crop Lands —Diagonal



PRESENT LAND USE (NON-URBAN)

C-1.1

SUGGESTED FOR SCALES B, C AND D

	BLACK AND WHITE	COLOR LEGEND	SYMBOLS FOR FIELD NOTES
FORESTS			
FOREST—NOT PASTURED		7	F
FOREST—CUT OR BURNED OVER, NOT RESTOCKING		7&16	FX
FOREST—PASTURED		7&15	FP
PASTURE			
PASTURE—NATIVE PLANT RANGE		14	PN
PASTURE—TAME PLANT		15	PT
PASTURE—ROTATED		15	PR
PASTURE—NON-PLOWABLE		14&15	PNX & PTX
RESIDENTIAL AND COMMERCIAL		1	U
CROP LANDS			
CROPS—HAY		5	CH
CROPS—SMALL GRAIN		5	CG
CROPS—ROW CROPS, INTERTILLED		4	CR
CROPS—CULTIVATED SUMMER FALLOW		16 & 5	CF
CROPS—ORCHARDS AND VINEYARDS		7	CO
CROPS—TRUCK AND SMALL FRUITS		4	CT
IDLE AND FALLOW		16	X
MISCELLANEOUS COVER			
BARE ROCKS		16	MR
MARSH		10	MM
NOT OTHERWISE CLASSIFIED		16	MX
WATER AREAS		10	
RESERVATION BOUNDARIES		(a)	
FOREST TYPES			
CONIFEROUS		7	FC
DECIDUOUS		7	FD
MIXED		7	FM

NOTES AND ADDITIONAL SYMBOLS

(a) BORDER DESIGN OR COLOR DENOTES OWNERSHIP (SEE PLATE D-5)

INSERTION OF LETTER "I" INDICATES IRRIGATED AREA

DEFINITIONS OF TERMS USED IN MAPPINC PRESENT NON-URBAN USE OF LAND (PLATES C-1 AND C-1.1)

FOREST LAND.—Land bearing a dominant cover of forest trees, irrespective of their size or age. (Land bearing shrubs or woody plants that do not grow into trees at least twelve feet high at maturity should not be included.)

FOREST, CONIFEROUS.—Land bearing a dominant cover of forest trees, 80 percent or more of which are coniferous.

FOREST, DECIDUOUS.—Land bearing a dominant cover of forest trees, 80 percent or more of which are deciduous.

FOREST, MIXED.—Land bearing a dominant cover of forest trees of which neither coniferous nor deciduous species constitutes 80 percent or more of the stand.

FOREST LAND, PASTURED.—Forest land which gives evidence of being or having recently been grazed by domestic livestock.

FOREST LAND, NOT PASTURED.—Forest land which gives no evidence of being or having recently been grazed by domestic livestock.

FOREST, CUT OR BURNED OVER, NOT RESTOCKING.—Forest land from which the trees have been cut or burned, and which is not restocking to trees, and from which the stumps or snags have not been removed and which is not used for pasture or crops.

PASTURE.—Land grazed by domestic livestock, and NOT bearing a dominant cover of forest trees. It may, however, contain stumps, shrubs, or brush, and it may contain some trees as long as these are not so numerous as to give a dominantly forested aspect to the tract or area.

NATIVE PLANT PASTURES.—Open pasture of which the dominant forage plants are native to the United States and not artifically seeded. This includes all western ranges and other pasture in which the native grasses, shrubs, or browse plants are dominant.

TAME PLANT PASTURE, PERMANENT.—Open permanent land, perennially used for pasture, of which the dominant forage plants are species commonly seeded by man, such as alfalfa, sweet clover, rye grass, Kentucky blue grass, or Bermuda grass.

TAME PLANT PASTURE, ROTATED.—Open pasture, of which the dominant forage plants are species commonly seeded by man but rotated periodically with various crops.

HAY (BOTH TAME AND WILD).—Includes all grass, grains, and leguminous crops cut, cured and stored for forage except crops grown in intercultivated rows.

SMALL GRAIN AND OTHER CLOSE GROWING CROPS EXCEPT HAY.—Includes wheat, oats, barley, rye, rice, flax, and buckwheat. Does not include small grains cut for hay.

ROW OR INTERTILLED CROPS.—Includes cotton, corn, sorghums, tobacco, sugar beets, sugar cane, peanuts, sweet potatoes, potatoes, hops, etc. Does not include orchards, vineyards, truck or small fruit.

CULTIVATED SUMMER FALLOW.—(Found only in dry farming regions.) Land left fallow for one or more years and cultivated to destroy weeds, in order to conserve moisture supply.

IDLE.—Open land which appears to have been plowed, abandoned, and is not now used for crops, pasture, or forest.

ORCHARDS AND VINEYARDS.—Includes all orchards of fruit or nut trees and vineyards, providing these have been artifically planted. Does not include maple sugar orchards, or any groves, unless artifically planted.

TRUCK AND SMALL FRUIT.—Includes all intensively cultivated vegetables and small fruit grown especially for immediate consumption such as lettuce, spinach, celery, beans (green), cabbage, strawberries, raspberries, blackberries, rhubarb, etc.

MISCELLANEOUS COVER:—

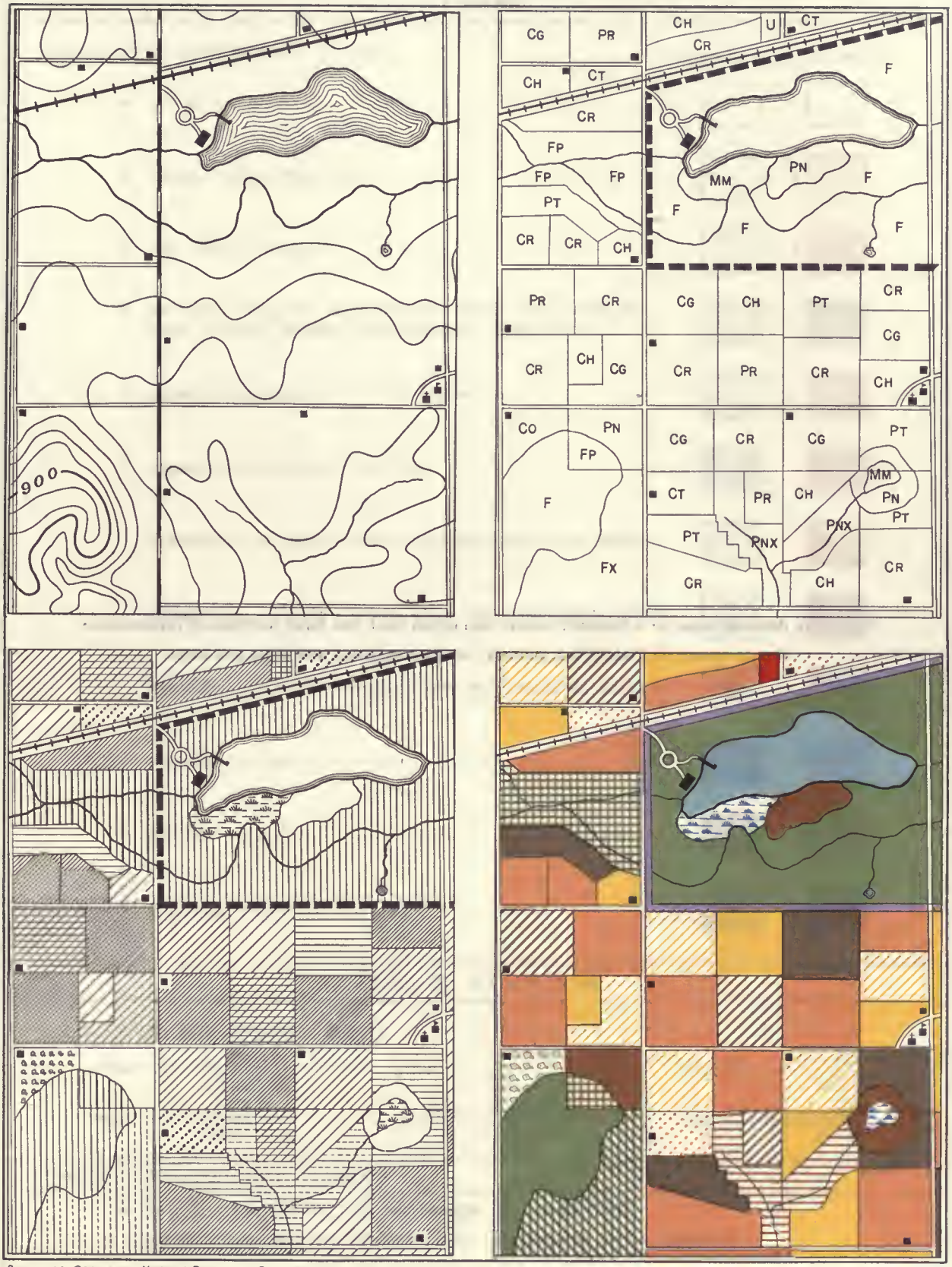
BARE ROCK.—Includes barren areas in which rock is predominating cover.

MARSH.—Poorly drained land, bearing cover of grass, not forested and not used for pasture or crops.

RESIDENTIAL AND COMMERCIAL AREAS.—Areas occupied mainly by non-farm residences and industries not otherwise classified.

IRRIGATED LAND.—Land which is periodically subjected to artificial applications of water, by whatever means.

PRESENT LAND USE MAP (NON-URBAN)



Prepared in Office of the National Resources Committee

SCALE $\frac{1}{31680}$ OR 1" = $\frac{1}{2}$ MILE

This plate demonstrates for a selected area of non-urban land, the three methods of presentation of data shown on Plate C–1.1, namely: field notes, black and white and color.

PRESENT LAND USE (URBAN)

C-2

ZONING

SUGGESTED FOR SCALES D AND E

		BLACK & WHITE	COLORED
*	VACANT LAND		18
*	SINGLE FAMILY DWELLING		5
*	TWO FAMILY DWELLING		4
*	MULTIPLE DWELLING, INCLUDING APARTMENTS FOR THREE OR MORE FAMILIES, ROOMING AND BOARDING HOUSES, ETC.		14
(a) *	COMMERCIAL BUILDINGS — LOCAL (RETAIL)		2
*	COMMERCIAL BUILDINGS — CENTRAL		1
	COMMERCIAL BUILDING — FIRST FLOOR WITH RESIDENCE ABOVE	1	5
	COMMERCIAL BUILDING — FIRST FLOOR WITH APARTMENTS ABOVE	1	14
	COMMERCIAL BUILDING — FIRST FLOOR WITH INDUSTRY ABOVE	1	12
*	INDUSTRY — LIGHT		12
*	INDUSTRY — HEAVY		13
*	RAILROAD PROPERTY		17

TYPE OF STRUCTURE

SUGGESTED FOR SPECIAL MAPS

FRAME

STONE

STUCCO

BRICK

CONCRETE

MISCELLANEOUS

NOTES AND ADDITIONAL SYMBOLS

* SYMBOLS FOR USE IN THE PREPARATION OF ZONING MAPS

(a) SMALL SHOPS OR LOCAL STORES TO MEET THE DEMANDS OF THE COMMUNITY

CONSERVATION AND RECREATION

D-1

* FIRE CONTROL

FOR SPECIAL MAPS

- COOPERATIVE WATERSHED BOUNDARY
- UNIT BOUNDARY
- FIRE DISTRICT BOUNDARY
- FIRE LINE OR FIRE BREAK
- STATE FORESTER OR SIMILAR OFFICER
- DISTRICT CHIEF HEADQUARTERS
- STATE, COUNTY, OR TOWN FIRE WARDEN HEADQUARTERS
- DEPUTY FIRE WARDEN HEADQUARTERS
- PATROLMAN CAMP
- FIREMAN
- COMBINATION LOOKOUT - FIREMAN
- PRIMARY LOOKOUT STATION
- PER DIEM GUARD
- OBSERVATION TREE, STEPS, AND PLATFORM
- TRIANGULATION AND OBSERVATION TREE
- PATROL ROUTE
- FOOD SUPPLY OR CACHE
- STOCKED TOOL SUPPLY BOX, KIOSK OR CACHE

* RANGE MANAGEMENT

FOR SPECIAL MAPS

- FOREST BOUNDARY — 11
- RANGER DISTRICT BOUNDARY — 10
- RANGE DIVISION OR MANAGEMENT UNIT — 9
- GAME AND RECREATION — 12
- PRIVATE LAND — 1
- OPEN FOR ALL STOCK — 18
- OPEN FOR CATTLE AND HORSES ONLY — 2
- OPEN FOR SHEEP AND GOATS ONLY — 5
- CLOSED TO ALL STOCK — 4
- LAMBING GROUNDS
- DRIVEWAYS — 15
- CORRAL
- SPRING, WHERE STOCK MAY BE WATERED
- WELL
- ARTESIAN WELL
- WATER STORAGE (DEVELOPED) WHERE STOCK MAY BE WATERED
- WATER STORAGE (NATURAL) WHERE STOCK MAY BE WATERED
- SALT TROUGH (FOR GRAZING RANGE)
- SHEEP CAMP, CATTLE CAMP, ETC.
- RANGE FENCE (CONSTRUCTED)
- RANGE FENCE (PROPOSED)

NOTES AND ADDITIONAL SYMBOLS

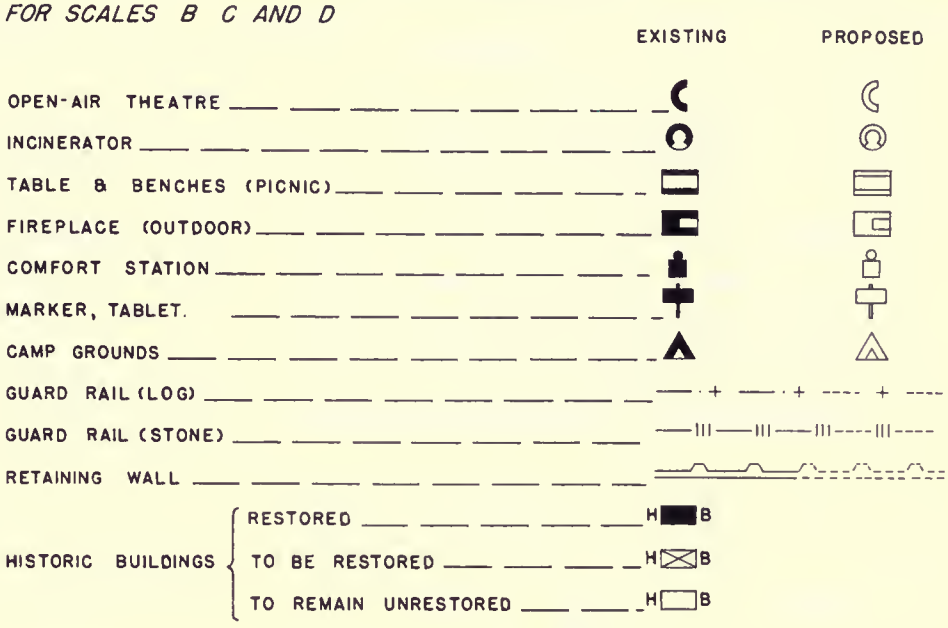
* SYMBOLS USED BY FOREST SERVICE

CONSERVATION AND RECREATION

D-2

MISCELLANEOUS STRUCTURES

SUGGESTED FOR SCALES B C AND D



NOTES AND ADDITIONAL SYMBOLS

CONSERVATION AND RECREATION

D-3

TYPE AND OWNERSHIP

KEY TO OWNERSHIP

	SCALE A	*SCALES B, C, D* BORDER TO INDICATE OWNERSHIP EXISTING AND PROPOSED
NATIONAL	N	
STATE	S	
COUNTY	C	
MUNICIPAL	M	
SEMI-PUBLIC	P	

KEY TO TYPE OR USE

SUGGESTED FOR ALL SCALES

	EXISTING	PROPOSED
FOREST	●	○
PARK — OTHER THAN MUNICIPAL	★	☆
PARK — INTENSIVE USE	▲	△
INDIAN RESERVATION	▼	▽
SITE OR MONUMENT	■	□
WILDLIFE RESERVATION	◆	◇
MILITARY RESERVATION	⛊	⛉

EXAMPLES

STATE FOREST

SCALE A

●S

STATE FOREST

SCALE B

NOTES AND ADDITIONAL SYMBOLS

CONSERVATION AND RECREATION

D-4

TYPE OF AREA BY USES

SUGGESTED FOR ALL SCALE MAPS

	EXISTING	PROPOSED
FORESTS	●	○
PARKS — OTHER THAN MUNICIPAL	★	☆
INDIAN RESERVATION	▼	▽
INTENSIVE RECREATION AREAS	▲	△
MUNICIPAL PARKS	◮	
CAMP GROUNDS	▲	
PICNIC GROUNDS	◮	
PLAYGROUNDS, BALL FIELDS, ETC.	◬	
BATHING BEACHES	◬	
BOAT LANDINGS	◭	
SKI GROUNDS	◭	
COUNTRY CLUB, GOLF COURSES	◭	
FAIR GROUNDS	◭	
SITES AND MONUMENTS	■	□
GEOLOGIC AND BOTANIC	◪	
HISTORIC AND ARCHAEOLOGIC	▬	
SCENIC	▮	
WILDLIFE AREA	◆	◇
BIRD SANCTUARIES	◈	
PUBLIC SHOOTING GROUNDS	◈	
GAME FARMS	◈	
GAME PRESERVES	◈	
PUBLIC FISHING AREAS	◈	
FISH PRESERVES	◈	
FISH HATCHERIES	◈	
MILITARY RESERVATIONS IN GENERAL	⛊	⛉
MILITARY CEMETERY	⛨	
MILITARY HOSPITALS	⛨	

NOTES AND ADDITIONAL SYMBOLS

CONSERVATION AND RECREATION

COLOR KEY FOR SPECIAL RESERVATION MAPS

COLOR KEY SHOWING OWNERSHIP ONLY

1	11	4	12	15
NAT.	STATE	COUNTY	MUNICIPAL	SEMI-PUBLIC

COLOR KEY SHOWING TYPE ONLY

BORDER COLOR FROM KEY ABOVE SHOWS OWNERSHIP
FIELD COLOR FROM KEY AT LEFT SHOWS TYPE

	NAT.	STATE	COUNTY	MUNICIPAL	SEMI-PUBLIC
9 FORESTS					
12 PARKS—(OTHER THAN MUNICIPAL) MONUMENTS—(OTHER THAN NATIONAL)				*	*
11 NATIONAL MONUMENTS, MEMORIALS, CEMETERIES, BATTLEFIELD SITES					
13 HISTORIC AND SCENIC AREAS					
14 MILITARY RESERVATIONS			*	*	*
5 INDIAN RESERVATIONS			*	*	*
7 WILDLIFE PRESERVES					
16 PUBLIC BUILDINGS AND GROUNDS					
2 INTENSIVE USE AREAS (SEE PLATE D-4)					

DEFINITELY PROPOSED PURCHASE AREAS

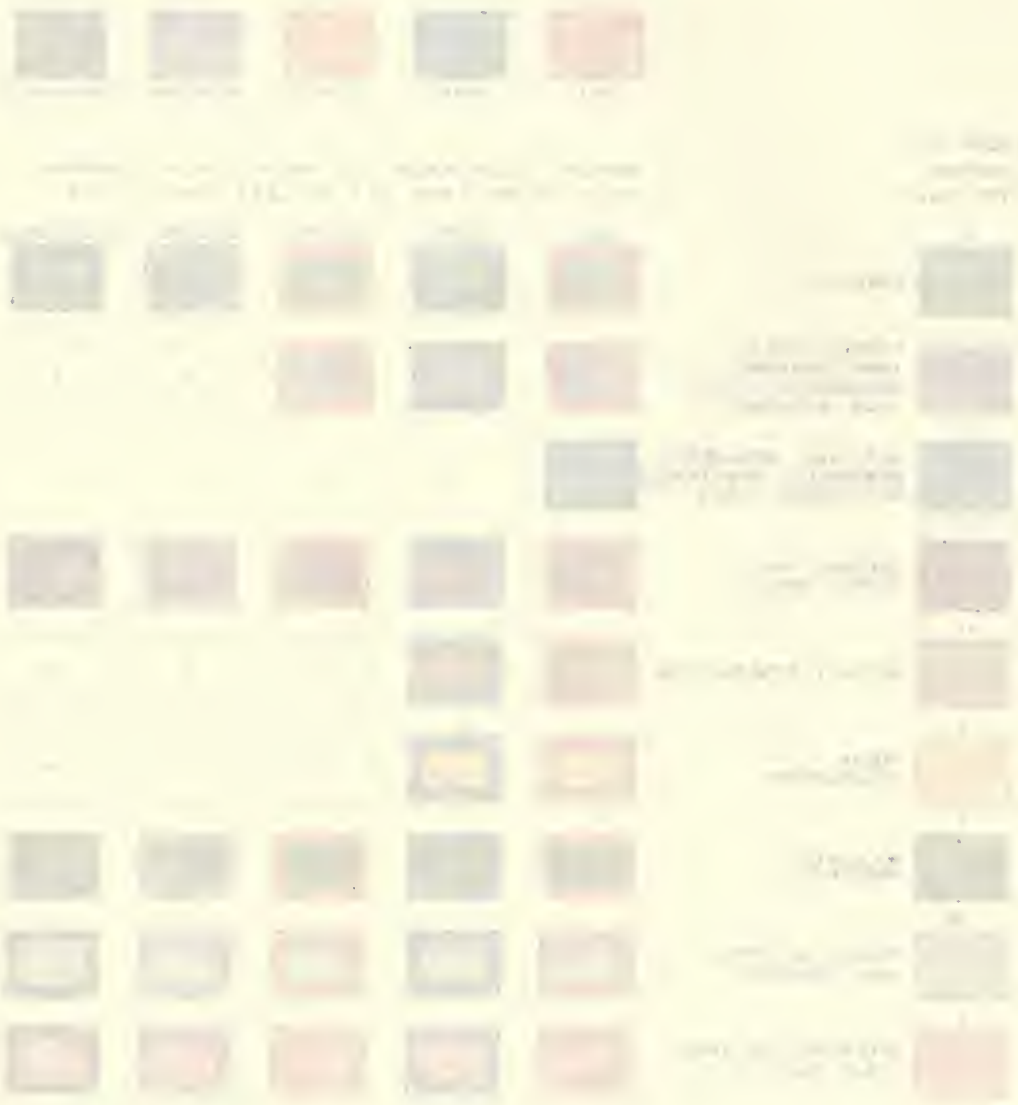
NOTE: BORDER COLOR INDICATES PROPOSED OWNERSHIP — COLOR FIELD HATCH TO SHOW TYPE

AREAS DESIRABLE FOR PUBLIC ACQUISITION

ONLY FIELD HATCH IN COLOR, BORDER COLOR NOT USED

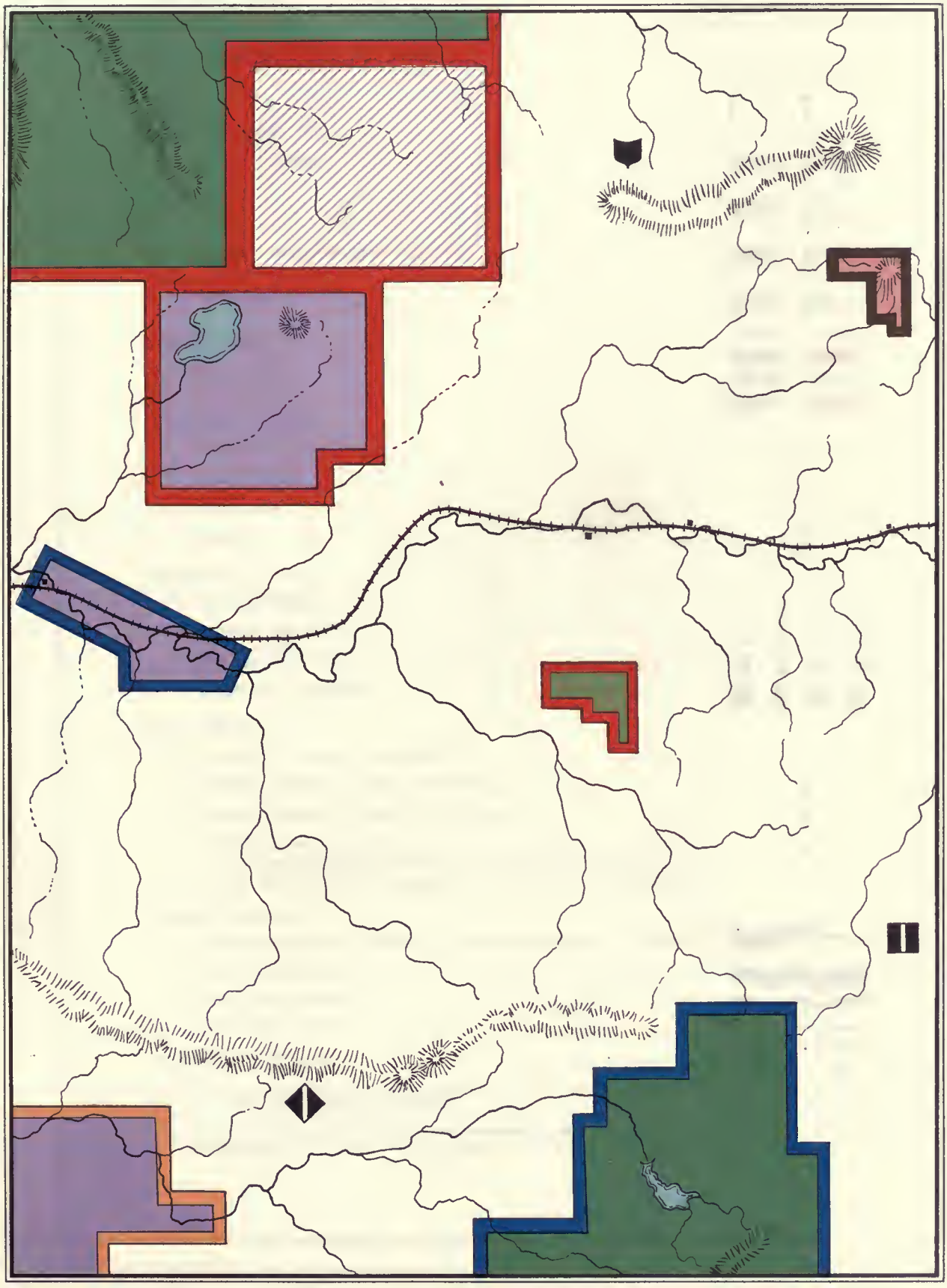
NOTES AND ADDITIONAL SYMBOLS

* ASTERISK INDICATES TYPE UNCOMMON IN OWNERSHIP CLASS



TYPE AND OWNERSHIP MAP

This map, which shows the location, type, and ownership of recreational areas, was prepared to demonstrate the use of the symbols shown on Plates D-4 and D-5.



SCALE 1/500000

WATER RESOURCES

E-1

SUGGESTED FOR SCALES A AND B

NOTES AND ADDITIONAL SYMBOLS

(a) LETTER SYMBOLS, COLORING, OR OTHER APPROPRIATE CROSS-HATCHING MAY BE DEVISED TO SHOW USES OR COMBINATION OF USES FOR AN EXAMPLE OF LETTER SYMBOLS, SEE PLATE A-4

WATER RESOURCES

COMMENTS.—Symbols for showing the detailed design of projects, such as individual irrigation or flood control works are of less importance to planning agencies than are symbols for showing large scale distribution. The suggested symbols on this plate indicate the range of data which it may be desirable to show for a given State or basin. The terms "partial" and "complete treatment" as applied to water supply and sewage disposal should be defined whenever used, inasmuch as they have no generally precise definition. Likewise, the basis for estimating the amount of pollution should be stated.

TRANSPORTATION

F-1

ROADS, HIGHWAYS, INTERSECTIONS, ETC.

SUGGESTED FOR ALL SCALE MAPS

(1) ROAD CLASSES

- PRIMITIVE ROAD
- UNIMPROVED ROAD
- GRADED AND DRAINED ROAD
- SOIL SURFACED ROAD
- METAL SURFACED ROAD
- BITUMINOUS SURFACED ROAD
- PAVED ROAD

ROAD SYSTEM DESIGNATION

- UNITED STATES HIGHWAY — 12
- STATE HIGHWAY (USE STATE'S SYMBOL) — 3
- FEDERAL AID HIGHWAY SYSTEM — FAS
- COUNTY HIGHWAY (USE COUNTY'S SYMBOL) — 2

INTERSECTIONS

	EXISTING	PROPOSED
HIGHWAY INTERSECTIONS		
TRAFFIC CIRCLE		
CLOVER LEAF		
GRADE SEPARATION		
RAILROAD CROSSINGS		
GRADE CROSSING		
RAILROAD ABOVE		
RAILROAD BELOW		

FUNCTIONAL TYPE

	EXISTING	PROPOSED
FREEWAYS OR LIMITED WAYS		
PARKWAYS		
BOULEVARDS		
OTHER PRIMARY ROUTES		
SECONDARY ROUTES (IMPROVED)		
BRIDLE PATHS		
TRAILS AND FOOTPATHS		
PARKING OVERLOOK		
PARKING AREA		

(1) BUREAU OF PUBLIC ROADS

ROAD CLASS DEFINITIONS (PLATE F-1)

PRIMITIVE ROAD.—An improved route, usable by 4-wheel vehicles and publicly traveled by small numbers of vehicles, UPON WHICH PUBLIC FUNDS HAVE NOT BEEN EXPENDED.

UNIMPROVED ROAD.—A roadway, the traveled surface of which is wholly or with minor local exceptions the natural ground of the region traversed, which may or may not have been bladed, which does not conform in respect to alignment, grade and drainage, at least to the definition of a "Graded and Drained Road", and on which the only work that has been done BY PUBLIC AUTHORITY is that required to maintain a condition of bare passability.

GRADED AND DRAINED ROAD.—A roadway of natural soil, aligned and graded to permit reasonably convenient use by motor vehicles, and drained by longitudinal and transverse drainage systems sufficiently to prevent serious damage or impairment of passability by surface water.

NOTE: The degrees of adequacy of alignment, grade and drainage here implied are considerably less than complete; they are to be considered the least that will qualify for the designation "Graded and Drained".

SOIL SURFACED ROAD.—A roadway of natural soil, possessing qualities of alignment, grade and drainage at least equal to those described under "Graded and Drained Road", the upper layer of which has been treated for purposes of stabilization by addition of an admixture such as oil, tar, Portland cement, calcium chloride, sodium chloride, or fine granular material, or which has been surfaced with a course of mixed soil such as sand-clay or topsoil.

METAL SURFACED ROAD.—A road the traveled way of which consists of gravel, broken stone, slag, or other similar fragmental material (coarser than sand) either in natural position or artificially applied.

NOTE: The grading and drainage criterion is omitted in this and subsequent surfaced classes to permit inclusion of all roads actually surfaced.

BITUMINOUS SURFACED ROAD.—A road the surface of which consists of sand or material similar to that of a "metal surfaced road", with which has been mixed or to which has been applied by surface distribution a bituminous material, but not including Standard Bituminous (Penetration) Macadam, Sheet Asphalt, Bituminous Concrete, or SURFACES AGREED BY THE BUREAU AND THE STATE TO BE THE EQUIVALENT OF ANY SUCH TYPES.

PAVED ROAD.—A road surfaced with Brick or other form of Block, Portland Cement Concrete, Sheet Asphalt, Bituminous Concrete, Bituminous (Penetration) Macadam, or other material AGREED BY THE BUREAU AND THE STATE TO BE EQUIVALENT TO ANY OF SUCH TYPES.

TRANSPORTATION

F-2

RAILROADS, BUS LINES, SUBWAYS, PIPE LINES, ETC.

SUGGESTED FOR SCALES A AND B

RAILROADS

- SINGLE TRACK
- DOUBLE TRACK
- JUXTAPOSITION OF
- NARROW GAGE
- ELECTRIC (PASSENGER ONLY)
- IN ROAD OR STREET — ELECTRIC — STEAM
- ABANDONED RAILROAD
- ABANDONED ELECTRIC LINE

SUGGESTED FOR SCALES C AND D

RAILROADS - STEAM — EXISTING — PROPOSED

- SINGLE TRACK
- DOUBLE TRACK

RAILROADS - ELECTRIC

- SINGLE TRACK
- DOUBLE TRACK

- ALL RAILROADS TO BE ABANDONED
- RAILROAD PROPERTY
- RAILROAD AND INDUSTRIAL PROPERTY
- PASSENGER STATION
- FREIGHT STATION
- COMBINED PASSENGER AND FREIGHT STATION
- FREIGHT YARDS
- SUBWAYS
- ELEVATED RAILROADS
- BUS LINE

SUGGESTED FOR ALL SCALE MAPS

- PIPE LINE - GENERAL SYMBOL
- GAS
- CRUDE OIL
- REFINED OIL

NOTES AND ADDITIONAL SYMBOLS

TRANSPORTATION

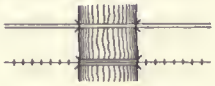
F-3

BRIDGES, FERRIES, WATERWAYS, AIRWAYS, ETC.

SUGGESTED FOR ALL SCALE MAPS

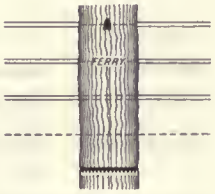
BRIDGES

GENERAL (a)



FERRIES

FORDS
- ROAD
- TRAIL



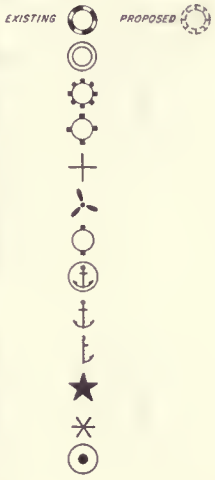
DAM

WATERWAYS

	EXISTING	PROPOSED
CHANNELS OVER 12' DEEP		
CHANNELS BETWEEN 9' AND 12'		
CHANNELS BETWEEN 6' AND 9'		
CHANNELS LESS THAN 6'		

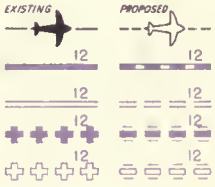
AIRPORTS AND FACILITIES

GENERAL SYMBOL



(a)
- ARMY - NAVY CORPS
- COMMERCIAL OR MUNICIPAL
- DEPARTMENT OF COMMERCE - INTERMEDIATE
- MARKED AUXILIARY
- EMERGENCY - PRIVATE
- STATE FIELD
- SEA PLANE - FULL FACILITIES
- SEA PLANE - USUAL FACILITIES
- SEA PLANE - LIMITED FACILITIES
- AIR WAY LIGHT BEACON
- LAND MARK BEACON
- RADIO BEACON STATION

AIRWAYS



- GENERAL SYMBOL
- AIR-PLANE LINES - ALL YEAR
- AIR-PLANE LINES - SEASONAL
- SEA-PLANE LINES - ALL YEAR
- SEA-PLANE LINES - SEASONAL

NOTES AND ~~AND~~ ADDITIONAL SYMBOLS

IF ELABORATION OF THESE SYMBOLS IS DESIRED TO NOTE THE TYPE OF CONSTRUCTION OF THE BRIDGE, USE THE SYMBOLS OF THE BOARD OF SURVEYS AND MAPS.

(a) FOR SPECIAL MAPS

POWER AND COMMUNICATION

SUGGESTED FOR SCALES A AND B

	EXISTING	PROPOSED
TELEGRAPH AND TELEPHONE LINES		
POWER TRANSMISSION LINES		
POWER DISTRIBUTION LINES		
POWER DISTRIBUTION AND TELEPHONE LINES		

SUGGESTED FOR ALL SCALE MAPS

	EXISTING	PROPOSED
(a) TRANSMISSION LINES		
SINGLE CIRCUIT		
SINGLE CIRCUIT ALTERNATE		
TWO CIRCUITS		
CROSS OVER		
INTER-CONNECTION		
DOUBLE CIRCUIT CONSTRUCTION, ONLY ONE LINE AT PRESENT INSTALLED		
PROJECTED TRANSMISSION LINE CONSTRUCTION WITH PROVISION FOR FUTURE 2ND CIRCUIT		
INDICATES CYCLE	25	
(b) GENERATING STATIONS		
FUEL PLANTS		
HYDRO PLANTS		
FUEL AND HYDRO PLANTS		
L – REFERS TO LICENSE GRANTED BY F.P.C.	L	
SEPARATE DETAIL FOR LARGE CITIES		
PUBLICLY OWNED		
FUEL PLANT		
HYDRO PLANT		
FUEL AND HYDRO		
MUNICIPALITIES BUYING POWER WHOLESALE AND DISTRIBUTING DETAIL		
SUBSTATION		

NOTES AND ADDITIONAL SYMBOLS

(a) – NUMBERS AT LINES INDICATE THOUSANDS OF VOLTS; THUS 110
WEIGHT OF LINES CORRESPONDS TO SCALE OF MAP AND NUMBER OF KV.

(b) – CAPACITY IN THOUSANDS OF KW. SHOWN THUS 2
SIZE OF SYMBOL CORRESPONDS TO SCALE OF MAP AND NUMBER OF KW.